A Swift Survey and Kepler Light Curves: Rigorously Probing AGN Accretion

Completed Technology Project (2016 - 2017)

Project Introduction

Since the previous report, we have doubled our sample size of K2/Kepler-monitored X-ray targets, made considerable pipeline improvements, begun the promised temporal analyses, and worked to make our science products available to the K2 community. We have published the first KSwAGS paper, and have begun drafting the paper for the ecliptic plane phase of the survey. We have successfully surveyed K2 Field 4 and K2 Field 8 with Swift, generating a new crop of X-ray targets, and increased our science yield by obtaining K2 monitoring of X-ray sources in archival surveys. Our optical follow up is now complete for the entire original Kepler sample and the K2 Field 4 sample, and we are guaranteed to continue to receive time to follow-up the K2 targets. New data analysis results include a much-expanded sample of black hole masses and accretion rates from the optical spectra of the active galactic nuclei (AGN), as well as rotation rates and the discovery of active chromospheres from the stellar spectra. We have updated our Kepler pipeline for use on the K2 data, and more improvements are underway, especially since beginning new collaborations at the K2 Science Conference in November 2015. Preliminary AGN timing results are promising for self-organized criticality accretion models.

Primary U.S. Work Locations and Key Partners

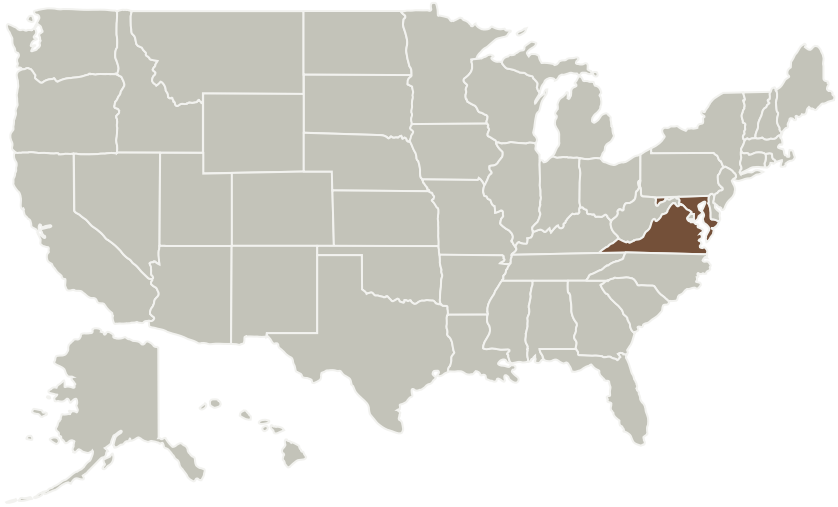

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Table of Contents

Organizational Responsibility

Responsible Mission Directorate:

Science Mission Directorate (SMD)

Responsible Program:

Astrophysics

Project Management

Program Manager:

Joe Hill-kittle

Continued on following page.

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Organizations Performing Work	Role	Type	Location
University of Maryland-College Park(UMCP)	Supporting Organization	Academia Asian American Native American Pacific Islander (AANAPISI)	College Park, Maryland

Primary U.S. Work Locations	
Maryland	Virginia

Project Management *(cont.)*

Principal Investigator:

Richard Mushotzky

Co-Investigators:

Stephanie M Swann
Krista L Smith

Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.3 In-Situ Instruments and Sensors
    - TX08.3.3 Sample Handling

Target Destination

Outside the Solar System